that enters the thermosetting resin 6m at the beginning of the bonding. Moreover, also in this embodiment similar to the first embodiment shown in Fig. 2C, there is produced the effect of reducing the connection resistance value by the arrangement that the inorganic filler 6f does not enter the space between the bump 3 and the board electrode 5 due to this outward extruding action. At this time, even if a certain amount of inorganic filler 6f enters the space between the bump 3 and the board electrode 5, there is no problem by virtue of the arrangement that the bump 3 is brought in direct contact with the board electrode 5. At this time, a load is applied while differing depending on the outside diameter of the bump 3 so that the folded portion of the head 3a may be deformed without fail as shown in Fig. 4C. At this time, when the conductive particles 10a in the anisotropic conductive film sheet 10 is provided by resin balls plated with a metal as shown in Fig. 6E, the conductive particles 10a are required to be deformed. When the conductive particles 10a in the anisotropic conductive film sheet 10 are metal particles of nickel or the like, it is required to apply a load to the extent that the particles get stuck in the bump 3 and the electrode 5 located on the board side as shown in Fig. 6D. This load is required to be 20 (gf per bump) at the minimum. That is, the resistance value becomes excessively increased

to a resistance value of 100 mΩ/bump or higher when the load is smaller than 20 (gf per bump) according to the graph of a relation between the resistance value and the load in the case of the bump of an outside diameter of 80 μm, resulting in practical problems, and therefore, a load of not smaller than 20 (gf per bump) is preferable, as shown in Fig. 17. Fig. 18 is a graph showing a region of high reliability based on a relation between bumps of outside diameters of 80 μm and 40 μm and a minimum load. According to this graph, it is presumed that the bump of an outside diameter of not smaller than 40 μm is preferably loaded with a minimum load of not smaller than 25 (gf per bump) and the reliability is high when the minimum load is not smaller than about 20 (gf per bump) in the case of the bump of an outside diameter smaller than 40 μm. It is also presumed that, when the bump outside diameter is reduced to 40 μm or less with a reduction in lead pitch in the future, the load tends to reduce in proportion to the second power of the projected area of the bump depending on the projected area of the bump. Therefore, the minimum load applied to the bump 3 side via the IC chip 1 is preferably 20 (gf per bump) at the minimum. The upper limit of the load applied to the bump 3 side via the IC chip 1 is set to the extent that none of the IC chip 1, the bump 3, the circuit board 4, and so on is damaged. According to

circumstances, a maximum load may sometimes exceed 100 (gf per bump) or 150 (gf per bump). At this time, if an inorganic filler 6f whose mean diameter is smaller than the mean diameter of the conductive particles is employed, there can be produced the effect of increasing the elastic modulus of the thermosetting resin 6m and reducing the coefficient of thermal expansion.

It is to be noted that the reference numeral 10s in the figure denotes a resin resulting from the thermosetting insulating resin 6m that has been melted by the heat of the bonding tool 8 and thereafter thermally hardened in the anisotropic conductive film sheet 10.

It is also acceptable to perform the process of aligning in position the IC chip 1 on the electrodes 2 of which the bumps 3 have been formed through the aforementioned preceding process by the bonding tool 8 heated by a built-in heater 8a such as a ceramic heater or a pulse heater with the electrodes 5 of the board 4 corresponding to the electrodes 2 of the IC chip 1 as shown in Fig. 1E with the board 4 prepared at the preceding process and the process of performing pressure bonding as shown in Fig. 1F after the positional alignment by means of one positional alignment and pressure bonding apparatus, for example, the position aligning and pressure bonding apparatus of Fig. 1E. However, it is also acceptable to